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ABSTRACT

This study examines relationships among several factors involved in choosing a major: gender, sex-role identification, clarity of purpose, and type of major (male-dominated or female-dominated). Study participants were 396 college seniors in the male-dominated College of Engineering and the female-dominated College of Education and Family and Consumer Sciences of an unspecified institution. Instruments used included the Student Development Task and Lifestyle Inventory Revised and the BEM Sex Role Inventory. Fewer than half of the students identified with traditional sex roles; yet most chose majors traditionally dominated by their gender. Choice of a traditional major was more likely to occur among women (72.4 percent) than among men (67.3 percent), even among androgynous individuals who psychologically identified with characteristics of both gender groups (androgynous women 76.8 percent, androgynous men 54.8 percent). Women in male-dominated majors viewed themselves as less feminine than women in female-dominated majors. A clearer sense of purpose was observed in women versus men in students in female-dominated majors versus those in male-dominated majors and in androgynous students versus those who were masculine-identified, feminine-identified, or undifferentiated. It is suggested that psychosocial and societal influences, not examined in this study, may also greatly impact the choice of a college major. (Contains 16 references.) (Author/NAV)

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Choice of Major and Clarity of Purpose Among College Seniors

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Abstract

The purpose was to examine relationships among several factors involved in choosing a major, gender, sex-role identification, Clarity of Purpose , and type of major (male-dominated/female dominated). Among college seniors fewer than half identified with traditional sex-roles; nevertheless, most chose majors traditionally dominated by their gender. Choice of a traditional major was more likely to occur among women (72.4%) than among men (67.3%) even among androgynous individuals who psychologically identify with characteristics of both gender groups (androgynous women 76.8%, androgynous men 54.8%). Women in male-dominated majors viewed themselves as less feminine than women in female-dominated majors.

A clearer sense of Purpose was observed in women vs. men in students in female-dominated majors vs. those in male-dominated majors, and in androgynous students vs. those who were masculine-identified, feminine-identified, or undifferentiated. Results are discussed in terms of developmental theory and recommendations for practice and research are offered.

ABOUT THE STUDY

This study explores some basic variables that might affect men and women today in choosing college majors and completing task of establishing and clarifying purpose. It begins with an exploration of Chickering's Theory of Identity development which is a theory that typically addresses young adult development. Chickering's model includes seven vectors which consist of developing competence, managing emotions, developing autonomy, freeing interpersonal relationships, clarifying purpose, and developing integrity which all have impact upon the vector of establishing identity.

This study focuses upon the vector of clarifying purpose because it is here where one articulates the direction and goals that define one's future, here where one formulates plans of action and a set of priorities, and it is here where one integrates three major elements; avocational and recreational interests, pursuit of vocation, and life-style issues including concerns for marriage and family. Thus, it is presumed that college students who achieve this task should be self-directed learners with a knowledge of self, knowledge of the world of work, and well defined educational goals.

For example, we know that college may encourage the development of purpose by requiring students to choose a major. (Eccles, 1987; Fanin, 1977; Pascarella & Terenzini, 1991), and that seniors who have made a career choice have a significantly higher sense of purpose than those who have not. (Long, Sowa, & Niles, 1995). It has also been suggested that women address Clarifying Purpose task differently from men. (Straub and Rodgers, 1986). Therefore, college seniors, both males and female, were selected for this study because it is presumed that they have progressed the furthest through the vectors of development as of the senior year experience.

Straub's study found that Chickering's vector three (developing autonomy) and vector five (freeing interpersonal relationships) were reversed for women. It this is true, then men should have higher purpose scores than women because they have had more time to secure autonomy which is an important component in developing purpose. This also means that women have had less time to focus upon their autonomy and have spent more time on interpersonal relationships which is not a major contributor to clarifying purpose.

In setting up the study, I decided to compare gender distribution in male-female dominated majors to see if it might provide us with some new insights on the students enrolled in these programs of study. I also wanted to examine the relationship of sex-role identification and clarity of purpose.

Sex-role identification takes into account one's view of self in relation to expectant roles for members of the same sex (Block, 1984). In other words, how do we see ourselves as men/women in relationship to what society thinks we should be? Sex-role identification is affected by traditional roles for one's sex and by the degree it expands or restricts options which one internalizes as society's standards. This is known as socialization. When socialization is combined with the effects of the college experience, it can contribute to the total impact of college on the careers of students (Pascarella & Terenzini, 1991), thus it merits examination with regard to clarity of purpose.

Therefore, the variables of this study were: Clarity of Purpose as defined by Chickering; Gender; Sex-role identification which includes identities of androgyny (masculine and feminine characteristics) Masculine-identified (predominance of masculine characteristics, Feminine-identified (predominance of feminine characteristics) and undifferentiated (a lack of overriding masculine and feminine characteristics); and type of major (male-dominated and female-dominated) based on the classification statistics compiled by the U.S. Dept. of Labor, Bureau of Labor Statistics using employment information in specific fields such as teaching, engineering, business, and various management positions. (U.S. Department of Labor, Bureau of Labor Statistics, 1989).

The participants were male and female college seniors from the male-dominated College of Engineering and Business, and the female-dominated College of Education and Family and Consumer Sciences. College seniors completed the instruments in senior-level exit courses during specifically designated class times between March and May of the spring semester. Data for the education majors was collected in January prior to the start of their field experience in student teaching and by mail for secondary education majors who were already relocated to complete the student teaching experience. Some professional clubs were contacted to reach additional seniors not in the exit courses. Few students declined to participate under these conditions.

The study contains 396 college seniors; 43% in male-dominated majors and 57.1% in female-dominated majors; 61.4% female and 38.6% male; 87.8% Caucasian-American and 94.9% were U.S. Citizens; 82% were never married; and 81.1% were traditional college age (under 25 years old).

The two instruments used for this study were (a) the Establishing and Clarifying Purpose items of the Student Development Task and Lifestyle Inventory Revised (SDTLI-2) (2nd edition, Winston and Miller, 1987) and (b) the BEM Sex Role Inventory (BSRI) (Bem, 1981). The SDTLI-2 examines the task of Clarifying Purpose. It contains five subtasks and students are asked to respond to each. Their responses reflect achievement of the basic task. A total of seventy-eight items is included in this measure with two bias checks. Scoring is accomplished by counting the number of responses that indicate that students have achieved the underlying construct.

The BSRI contains 60 personality characteristics that are considered socially desirable in American society for males and females. Twenty are stereotypically feminine such as affectionate and sympathetic; twenty are stereotypically masculine such as defend own beliefs, assertive; and twenty are filler items such as moody and reliable. Scoring is achieved by averaging the responses for all the masculine items and the feminine items and by using a Split-Sort method, the resulting scores determine the sex-role classification of the subject.

THE RESEARCH QUESTIONS AND THE FINDINGS

To what extent do college seniors identify with traditional sex roles?. (See Table 1).

Not to the extent one might first believe. Less than half of the seniors were in traditional identified roles, nearly sixty percent of the males and sixty-three percent of the females were choosing non-traditional sex-role identities, and more males than females were choosing the traditional identities. These patterns were statistically significant.

It was predicted that most of the students would identify with traditional sex-role identities. It was also predicted that the number of androgynous students would be greater than the number of undifferentiated students because the task of clarifying purpose would be near the completion of the senior year experience. For males, nearly one quarter were undifferentiated with this group exceeding the androgynous group. The prediction did hold however for the females.

Perhaps the women's movement has had an effect upon the identity development of these students. They seem comfortable with non-traditional views of sex-role identity or they are still working on their identity issues. We might presume with the passage of another 20 years and with the increase in egalitarian roles within families that the numbers of males in androgynous identified groups might further increase and the females might expand still further into the androgynous and the masculine-identified groups and thus provide more options for everyone. We might also assume that the seniors in this study may have a tendency to choose non-traditional majors because of their willingness to identify with non-traditional sex-roles.

What is the relationship between gender and type of major? (See Table 2).

Seniors tended to cluster in majors that are traditional for their gender group. These findings were statistically significant. This clustering may be because the choosing of a type of major is influenced by the value an individual places on both its perceived appropriateness and the estimated probability of success (Eccles, 1987). In other words, the choice may be made based on what society thinks they ought to be. Or it can be based on factors such as economy, availability of training, and employment opportunities (Fanin, 1977).

Do femininity scores of females and masculinity scores of males differ by type of major? (See Table 3).

Not for all groups. Females in male-dominated majors (nontraditional for them) do not view themselves as feminine as the females in female-dominated majors (traditional for them). Interestingly, male masculinity does not seem to be affected by the type of major. The means of all groups regarding femininity and masculinity were similar to or higher than overall averages reported in the BSRI manual for male and female Stanford University students in 1978. (Females on the femininity scale: M=5.05, SD=.53; males on the masculinity scale: M=5.12, SD=.65). Therefore there was a significant difference between the females.

Block (1984) asserts that women who select nontraditional options must reduce their level of femininity in order to perform well. Hyde, Fennema, Ryan, Frost and Hopp (1990) found that males stereotype mathematics as masculine more than females do, suggesting the possibility that males perceive whatever field they wish to pursue as masculine. Jones, Chernovetz, and Hansson (1978) noted that masculine-identified females were more feminist, more heterosexually involved, and more popular with men, sort of a "one of the guys" type. Thus we see in this data that the females in the nontraditional majors did indeed reduce their level of femininity and that male levels of masculinity seem equally stable for either type of major.

What is the relationship between sex role identification and type of major?

In the overall analysis of sex-role identification by type of major males and females combined total nearly forty percent of masculine-identified students in male-dominated majors. This probably reflects a level of comfortability and commonality. Less than fifteen percent of masculine-identified and feminine-identified students were in non-traditional majors, which reflects those students able to cross over and become non-traditional. Twenty percent of the undifferentiated students and the androgynous students were in the male-dominated major which suggest that there might be some similarity in perception of society's expectation for them. Thirty-four percent of the androgynous students and only twenty percent of the undifferentiated students were in the female-dominated major. This suggest that there may be some real difference in perception of society's expectations for them. Also there were equal amounts of feminine-identified and androgynous students willing to be in a female-dominated major.

What this means is that masculine-identified students prefer to be in a male-dominated major and that not many traditional identified students are willing to pursue non-traditional majors. There are also some undifferentiated and some androgynous students who hear societies expectation of them to be in a masculine-dominated major. More androgynous students than undifferentiated students however are willing to be in a female-dominated major. Lastly, it is the androgynous and feminine-identified students who are willing to be in a female-dominated major.

When the analysis is done for males and females separately (See Table 4), we see that some groups are influenced by gender stereotypes and not by sex-role identity in the selection of their major. Among the undifferentiated students two-thirds of the males and females chose to be in a traditional major for their gender group. Thus the voices of society have more influence than their own inner voice. There is evidence of significant

differences for females, for example, three fourths of the androgynous females chose the traditional major for their gender. There were no significant differences among the males. For the androgynous males it was a more even split with the feminine-identified males in their choice of male-dominated or female-dominated majors.

Maximizing the option of choice seem to differ for men and women. Nearly half of the androgynous male students selected a non-traditional major and nearly a fourth of the female androgynous students selected a nontraditional major. Therefore the male students seem to be expressing more flexibility of options. Half of the androgynous male students, half of the feminine-identified males and half of the masculine-identified females, made choices compatible with their sex-role identification rather than with their gender. Lastly, masculine-identified males in male-dominated fields and feminine-identified females in female-dominated fields seem to have made a choice of major compatible with both gender stereotypes and their sex-role identification.

Block (1984) asserts that socialization expands personal options available to men and restricts the options for men. Exercising options seems to be true for the androgynous males who chose the nontraditional majors in larger proportions than did the androgynous females. Also as shown earlier, the masculinity levels of the males did not seem to be affected by choosing either type of major.

So why haven't the women and the androgynous females exhibited the maximum flexibility of choice? One explanation might be that this group does experience some loss of time regarding clarifying purpose due to the reversal of the vectors for interpersonal relationships and autonomy according to Straub's theory. By not having as much time to work on autonomy this lack could be prompting them to make choices that are familiar to them or expected by traditional social norms.

So how does clarity of purpose vary by gender, type of major and sex-role identification? Gender was significant but not in the direction predicted. Since the students were comfortable with non-traditional sex-role identities and since Straub said women didn't have enough time to develop, I predicted that the men would be higher in clarity of purpose. However, it was the females who scored higher than the males. Type of major was significant but it was the females in the female-dominated majors that scored higher in clarity of purpose. Sex-role identification was also significant. The means were ordered in the predicted direction with the androgynous group having the highest rank and the undifferentiated group having the lowest. But the post hoc showed the androgynous group to be significantly higher than the other groups. The remaining groups were not considered to be very different from each other. The average score of the females and of those in female-dominated majors were comparable to the average score of 237 seniors from 20 different universities in the United States and Canada on the measure of Clarifying Purpose. ($\underline{M}$=45.21, $\underline{SD}$=10.34; Winston & Miller, 1987). The average scores of males and those in male-dominated majors were closer to the average score of 270 college juniors in the sample on the measure of Clarifying Purpose. ($\underline{M}$=40.19, $\underline{SD}$=10.73; Winston & Miller, 1987). (See Table 5). The largest difference between sex-role identification group means was considerable higher than the difference between gender group means, i.e. the means of the androgynous and undifferentiated groups different by 8 points, whereas those of males and females differed only by 3.3 points. Therefore sex-role identification does contribute to establishing some differences within our personality more so than our gender does.

Having higher purpose scores for the females could also indicate that they have greater insight into themselves and their environment and greater self-direction with regard to personal and vocational life plans. So as not to exaggerate the difference we must note that their scores were not extraordinarily high. Yet their scores could also be due to the strong and clear vocational orientation of the majors selected for this study. For women who have selected these fields, as opposed to those in liberal arts, they have selected a major clearly leading to the world of work, rather than simply to a college degree. Since this is not a universal expectation of all women as it is for men, these students may attend

to the issue of clarity of purpose early in their undergraduate program. They may be more positively affected by the strong role modeling and support systems which appear to be present in all colleges in this study.

Since androgynous students were found to have a significantly higher average purpose score than all other sex-role groups and since this finding did not change by gender, the stronger sense of purpose amongst these students may result from the fact that these students do not perceive themselves in terms of traditional sex-role definitions. They may be willing to expose themselves to a wide variety of life experiences, thereby increasing their opportunities to investigate and learn about both traditional and nontraditional life and career options.

It is perplexing that women and androgynous students who had achieved a clearer sense of purpose on average opted to chose a type of major that was traditional for their gender group rather than choose one compatible with their sense of identity. This study seems to contradict Luzzo (1993) who has suggested that career maturity among college students is enhanced by choice of an occupation that is congruent with personality type. Sex-role identity is a part of personality type but this study suggest that clarity of purpose can advance even when the choice of major is incompatible with sex-role identification. This also reinforces the previous concern expressed about restricted options which women students may perceive to be available to them.

Another concern should be the lower average purpose scores of the males in the study and the students in male-dominated majors in general. These students reflect a sense among male students, particularly those in Business and Engineering majors, that they "Have it all together" no matter what they do. They undoubtedly sense society's affirmation of male pursuits and career paths, and they may assume that their success is inevitable and somewhat unrelated to a need for self-direction, insight, and planning for personal and vocational success. This attitude on the part of students and faculty may prove to be detrimental in the long run because traditional male students with the most freedom to pursue occupational opportunities may be the least prepared to do so.

Student Affairs Implications

Students need to understand the student development process and where they fit within it. They should be encouraged to assess their own sex-role identity, assisted in pursuing an identity that is appropriate for their interest, talents, and skills, and lastly they should be assisted in identifying and examining societal stereotypes and how they affect student's perceptions and decisions.

Students should be motivated to explore the comfort level with their department, its instructors, and its academic assignments. They should be encouraged to search for role models and to investigate the occupational outcomes for persons like themselves; they should be offered strategies for success by those who have chosen to pursue nontraditional careers for their gender, and lastly they should be provided with maximum opportunities for success once a major is selected and an occupational goal is established.

Suggestions for the Future Research

In conclusion I do not think we have enough information on what is influencing the decision that college students make when they select a major. We really need to be able to converse with students about the psychosocial and societal influences that may be affecting them at the time of choosing a major.

Questions that remain for example are:

1. Why are so many androgynous women choosing traditional female majors, when about half of them should be expected to explore nontraditional fields?

2. How do females who select nontraditional majors differ from females in traditional fields?

3. Why are the clarity of purpose scores of males less than that of females and what effect does this have on their view of self and their chances of success?

4. Can this study be repeated, but with different populations not as vocationally focused as Engineering, Business, Education, and Family and Consumer Science?

5. Would the results of this study be affected by examining a racially different population?

For more detailed information please check for the future publication of this article in the Journal of College Student Development . It was accepted for publication in the Fall of 1996.

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TABLE 1

Sex-Role Identification by Gender

	Gender								
	Male			Female			Total		
Sex-Role Identification	n	Col %	Row %	n	Col %	Row %	n	Col %	Row %
Androgynous	31	20.3	27.4	82	33.8	72.6	113	28.5	100.0
Masculine identified	68	44.4	71.6	27	11.1	28.4	95	24.0	100.0
Feminine identified	14	9.2	13.9	87	35.8	86.1	101	25.5	100.0
Undifferentiated	40	26.1	46.0	47	19.3	54.0	87	22.0	100.0
Total	153	100.0	38.6	243	100.0	61.4	396	100.0	

$\underline{X}^2$ (3) = 77.59, $\underline{p} \leq .0001$.

TABLE 2

Type of Major by Gender

Type of Major	Gender						Total		
	Male			Female					
	n	Col %	Row %	n	Col %	Row %	n	Col %	Row %
Male-dominated	103	67.3	60.6	67	27.6	39.4	170	42.9	100.0
Female-dominated	50	32.7	22.1	176	72.4	77.9	226	57.1	100.0
Total	153	100.0	38.6	243	100.0	61.4	396	100.0	

$\underline{X}^2$ (1) = 60.54, $\underline{p} \leq .0001$.

Table 3. T-Tests of Femininity Scores of Females and Masculinity Scores of Males by Type of Major

	Female-Dominated			Male-Dominated			t-value	2-tail probability
Scores	N	M	SD	N	M	SD		
Femininity score[a]	176	105.40	10.32	67	99.19	10.90	4.13	.000**
Masculinity score[b]	50	105.34	13.64	103	105.47	12.35	.06	.954**

[a]females only, df = 241
[b]males only, df = 151
**tt p < .001

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TABLE 4

Sex-Role Identification by Type of Major

Male Students Only

Sex-Role Identification	Type of Major: Male-Dominated n	Male-Dominated Col %	Male-Dominated Row %	Female-Dominated n	Female-Dominated Col %	Female-Dominated Row %	Total n	Total Col %	Total Row %
Androgynous	17	16.5	54.8	14	28.0	45.2	31	20.3	100.0
Masculine-identified	52	50.5	76.5	16	32.0	23.5	68	44.4	100.0
Feminine-identified	7	6.8	50.0	7	14.0	50.0	14	9.2	100.0
Undifferentiated	27	26.2	67.5	13	26.0	32.5	40	26.1	100.0
Total	103	100.0	67.3	50	100.0	32.7	153	100.0	

$\underline{X}^2(3) = 6.69$, $\underline{p} = .08$.

Female Students Only

Sex-Role Identification	Type of Major: Male-Dominated n	Male-Dominated Col %	Male-Dominated Row %	Female-Dominated n	Female-Dominated Col %	Female-Dominated Row %	Total n	Total Col %	Total Row %
Androgynous	19	28.4	23.2	63	35.8	76.8	82	33.7	100.0
Masculine identified	15	22.4	55.6	12	6.8	44.4	27	11.1	100.0

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Feminine identified	17	25.4	19.5	70	39.8	80.5	87	35.8	100.0
Undifferentiated	16	23.9	34.0	31	17.6	66.0	47	19.3	100.0
Total	67	100.0	27.6	176	100.0	72.4	243	100.0	

$\underline{X}^2(3) = 15.19, \underline{p} \leq .01.$

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TABLE 5

Means and Standard Deviations for the Main Effects of Gender, Type of Major, and Sex-Role Identification in the Analysis of Variance of Establishing and Clarifying Purpose

Gender	M	SD
Male	42.25	11.06
(n = 153)		
Female	45.55	8.98
(n = 243)		
Choice of Major		
Male-dominated	42.41	10.04
(n = 170)		
Female-dominated	45.67	9.68
(n = 226)		
Sex-Role Identification		
Androgynous	48.76	7.87
(n = 113)		
Masculine identified	44.51	9.34
(n = 95)		
Feminine identified	42.27	10.36
(n = 101)		
Undifferentiated	40.52	10.43
(n = 87)		

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